IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Dianne ELLIS et al.	)	Examiner:	Arti R Singh-Pandey
Application No.:	10/699,425	)	Group Art Unit:	1786
Filed:	October 31, 2003	)	Confirmation No.:	3280
Docket No.:	02-292	)		

For: ANTI-MICROBIAL NONWOVEN WIPE August 18, 2010

APPEAL BRIEF
UNDER 37 C.F.R. § 41

Mail Stop **Appeal Brief — Patents**
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

(1) Identification

The appellants, application, and the Examiner's identification data associated with this paper are provided in the above-captioned heading.

The appellants hereby file an Appeal Brief under 37 C.F.R. § 41.37 and 41.31(a)(1) in response to the Office Action of July 8, 2010 with at least one claim on appeal having been twice rejected.

A Notice of Appeal under 37 C.F.R. § 41.31 was previously filed with the applicable fee under § 41.20(b)(1) on August 13, 2009 together with a Pre-Appeal Brief Request For Review. An appeal brief fee under 37 C.F.R. § 41.20(b)(2) was previously paid on March 25, 2010. The previously paid notice of appeal fee and appeal brief fee have been applied to this new appeal and filing of a brief in support of the appeal, and no notice of appeal fee or appeal brief fee are currently due.

(2) **Table of Contents**

(3) Real Party in Interest

The real party in interest in this case is *Polymer Group, Inc.*

(4) Related Appeals and Interferences

The appellants are not aware of any other appeals or interferences that will directly affect, be directly affected by, or have a bearing on the Board's decision in the present appeal.

(5) Status of Claims

Claims 1-3 and 5-14 are canceled.

Claims 4 and 15-22 are rejected.

No claims are withdrawn.

Claims 4 and 15-22 are on appeal.

(6) Status of Amendments

No amendment has been filed subsequent to the Examiner's most recent Office Action of July 8, 2010.[1]

[1] Claims 4 and 15-22 have been at least twice rejected, such as shown in the Office Actions dated December 29, 2009, July 22, 2009, and July 8, 2010. Therefore, this present application is ripe for appeal.

(7) Summary of Claimed Subject Matter

I. Concise Explanation of the Subject Matter Defined in Independent Claims and Separately Argued Dependent Claims

a) Independent Claim 4

Independent claim 4 is directed to a nonwoven anti-microbial wipe (page 2, lines 24-25; page 7, line 10) comprising

a fibrous nonwoven substrate (page 3, lines 27-28; page 7, line 11)

coated with a non-ionic and cationic binder mixture (page 6, lines 11-12; page 7, lines 11-12) and subsequently coated with

a cationic dual quaternary ammonia anti-microbial agent (page 3, lines 12-13; page 7, lines 8-9, 12-13),

the cationic dual quaternary ammonia anti-microbial agent being readily released upon being introduced to an associated water source (page 3, lines 14-18; page 7, lines 13-14).

b) Independent Claim 19

Independent claim 19 is directed to a nonwoven anti-microbial wipe (page 2, lines 24-25; page 7, line 10) comprising:

a three-dimensionally imaged fibrous nonwoven substrate (page 4, lines 10-16)

coated with a non-ionic and cationic binder mixture (page 6, lines 11-12; page 7, lines 11-12) and subsequently coated with

a cationic dual quaternary ammonia anti-microbial agent (page 3, lines 12-13; page 7, lines 8-9, 12-13),

the cationic dual quaternary ammonia anti-microbial agent being readily released

upon being introduced to an associated water source (page 3, lines 14-18; page 7, lines 13-14), and

a scrim layer reducing the extensibility of said three-dimensionally imaged fibrous nonwoven substrate (page 4, lines 10-19).

c) Independent Claim 21

Independent claim 21 is directed to a nonwoven laminate anti-microbial wipe (page 2, lines 24-25; page 7, line 10) comprising:

a fibrous nonwoven substrate (page 3, lines 27-28; page 7, line 11)

coated with a non-ionic and cationic binder mixture (page 6, lines 11-12; page 7, lines 11-12) and subsequently coated with

a cationic dual quaternary ammonia anti-microbial agent (page 3, lines 12-13; page 7, lines 8-9, 12-13),

said cationic dual quaternary ammonia anti-microbial agent being readily released upon being introduced to an associated water source (page 3, lines 14-18; page 7, lines 13-14), and

an additional layer selected from the group consisting of a fabric layer and a film layer (page 6, lines 6-8).

d) Dependent Claim 22

Dependent claim 22, which depends from claim 21, further specifies that the additional layer is a film layer selected from the group consisting of a cast film, an extruded film, and a reticulated film (page 6, lines 6-8).

(8) Grounds of Rejection to be Reviewed on Appeal

1) Whether claims 4 and 15-22 are unpatentable under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,667,290 B2 to Svendsen in view of U.S. Patent No. 7,013,541 B2 to Rivera et al.

(9) Argument

1. Rejection Under 35 U.S.C. § 103(a) Over Svendsen (U.S. Patent No. 6,667,290 B2) in view of Rivera et al. (U.S. Patent No. 7,013,541 B2)

Claim 4

Claims 4 and 15-22 were rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,667,290 B2 to Svendsen in view of U.S. Patent No. 7,013,541 B2 to Rivera et al.

The Examiner's Position

According to the Office Action dated July 8, 2010 (pages 3-5), claims 4 and 15-22 are unpatentable over the Svendsen in view of Rivera et al. for the following reasons.

The Examiner states, in part, that Svendsen discloses making treated substrates for sanitizing surfaces utilizing a sanitizing solution that includes a sanitizer (citing column 2), and the article includes a substrate which may be a woven, nonwoven, knit fabric, towel, foam or sponge (citing columns 2-3). The Examiner further states a sanitizer release polymer composition covers at least a portion of this substrate, and said composition comprises at least one cationic surfactant, and at least one nonionic surfactant (citing col. 3, lines 10-24), and thus this meets Applicant's limitations of a nonionic and cationic binder mixture applied to a nonwoven. The Examiner also states Svendsen employs a mixture of cationic and nonionic binders which are applied to a nonwoven web and it also teaches an antimicrobial cationic quaternary ammonium additive and how using cationic/nonionic binders allow for the release of the antimicrobial in contrast to using anionic binders at columns 1-2. The Examiner states Svendsen et al. teaches the compositional makeup as outlined in claim 4, but fails to teach that the wipe is a hard surface wipe, its compositional makeup or the additional layers as sought in claims 19-22, and this allegedly is remedied by Rivera et al. The Examiner further states a person having ordinary skill in the art would have found it obvious to have used the composition of the sanitizer of Svendsen on the

composite of Rivera et al. as the base substrate for the wipe and would have been motivated to do this in order to provide a wipe with enhanced strength and durability in the overall composite. The Examiner also states that, alternatively, looked at another way, Rivera et al. could be relied upon for its structure of the wipe and Svendsen relied upon for the compositional makeup of the cleaning solution. The Examiner further states that, therefore, a skilled artisan would have found it obvious to have substituted one cleaning solution for another, and one would have been motivated to do so in order to provide a cleaning wipe which cleans a specific surface such as glass, thereby justifying exchanging one cleaning solution for another.

For the following reasons, the appellants request review and reversal of this rejection.

The Appellants' Position

The present invention, as recited in claim 4, is directed to:

a nonwoven anti-microbial wipe comprising:

a fibrous nonwoven substrate, which is coated with

a non-ionic and cationic binder mixture, and subsequently coated with

a cationic dual quaternary ammonia anti-microbial agent that is readily released upon introduction to a water source.

Independent claim 19 is similar to claim 4 and further recites the fibrous nonwoven substrate is three-dimensionally imaged and includes a scrim layer reducing the extensibility of the nonwoven substrate. Independent claim 21 is similar to claim 4 and further recites an additional layer selected from the group consisting of a fabric layer and a film layer.

As recited in claims 4, 19, and 21 on appeal, these combined chemical and structural features of the wipe, i.e., a cationic dual quaternary ammonia anti-microbial agent structurally coated on top of a separately coated non-ionic binder and cationic binder mixture, can interact in an

unexpected manner such that the cationic dual quaternary ammonia anti-microbial agent is readily released from the wipe when the wipe is introduced to a water source. The cationic disinfectant is releasably absorbed into the fibrous nonwoven substrate of the wipe of the present claims. That is, the disinfectant must be initially absorbed into the binder component of the wipe from a coating so that it can be carried by the wipe. Once absorbed, the wipes of the present claims are capable of readily releasing the disinfectant into water when the wipe is used in a cleaning application, which intensifies the sanitization operation. Disinfectant absorption by a carrier binder and its rapid release from the carrier into water are functions and objectives that can be in conflict with each other. As explained in the present application, a cationic binder itself may not be able to properly absorb a cationic disinfectant due to the lack of affinity of the binder to a similarly charged disinfectant (page 2, lines 12-14). By combining a nonionic binder and a cationic binder for use with the cationic disinfectant in the same wipe, it has been found in the present invention that the non-ionic binder component of the binder mixture is sufficiently compatible with a cationic disinfectant wherein the disinfectant can be absorbed into a nonwoven wipe, and this compatibility also is marked by a low affinity between the binder and disinfectant with weak bonds formed that are easily broken such that the wipe can readily release the disinfectant into a water source (e.g., page 3, lines 9-18). Further, the cationic disinfectant and the cationic binder component of the binder mixture have the same charge (i.e., positive charge), which can assist the rapid release of the disinfectant from the wipe into a water source and/or prevent high affinity retentions of the disinfectant to the wipe.

The factual record shows that the Svendsen and Rivera et al. references relied upon by the Examiner in making the final rejection clearly fail to teach, suggest or predict the result of the combined features of a nonwoven anti-microbial wipe including all the above-discussed features recited in present claims 4, 19, and 21, in view of the following reasons.

a). "A nonwoven anti-microbial wipe ..."

Svendsen is missing the presently claimed feature of a nonwoven anti-microbial wipe.

Svendsen relates to an article for sanitizing a surface with a sanitizing solution while maintaining the concentration level of a sanitizer in the sanitizing solution at an effective concentration (e.g., abstract). Unlike Svendsen, the nonwoven anti-microbial wipe recited in present claim 4 on appeal has a cationic dual quaternary ammonia anti-microbial agent forming part of the wipe structure itself, and the anti-microbial agent is not a component of a separate sanitizing solution that can be used with the wipe.

In Svendsen, the sanitizing system requires both a substrate and a separate sanitizing solution (col. 2, line 60 to col. 3, line 5). As used in Svendsen, a "sanitizer" is an antimicrobial agent (col. 1, lines 22-28). As explained in the background section of Svendsen, the two most common sanitizers in sanitizing solutions are quaternary ammonium compound (QAC)-based or chlorine-based sanitizers, and it explains their art-recognized structures and properties (col. 1, lines 43-67).[2] Svendsen only uses such anti-microbial quaternary ammonium compounds (e.g., "QAC" or "QAT") in the sanitizing solution, but not as a component of the substrate.

[2] Svendsen also refers to "QACs" by the phonetic term of art of "QAT" which also is used for these antimicrobial agent compounds (*See*, col. 6, lines 42, 45, 60-65).

b). "A nonwoven anti-microbial wipe ... coated with a cationic dual quaternary ammonia anti-microbial agent [that] is readily released upon introduction to a water source."

Svendsen is missing the presently claimed feature of a nonwoven anti-microbial wipe coated with a cationic dual quaternary ammonia anti-microbial agent that is readily released upon introduction to a water source.

Svendsen treats the substrate with "an enhanced sanitizer release polymer composition" that contains at least one cationic or nonionic surfactant, and preferably a cationic surfactant which may also include a co-surfactant (col. 3, lines 60-63; col. 4, lines 26-34).

Importantly, at column 4, lines 13-25, Svendsen characterizes his invention with respect to the problem it is designed to solve as follows:

> Existing substrates used in the field of sanitizers use anionic surfactants which have the negative effect of attracting the cationic QAC-based and cationic chlorine-based sanitizers thereby reducing the concentration of sanitizer in the sanitizing solution. The enhanced sanitizer release polymer composition of the present invention achieves its unexpectedly superior sanitizer release properties by preferably using a cationic surfactant that repels the cationic QAC-based and cationic chlorine-based sanitizers and prevents the sanitizer from bonding to the substrate. This enables the substrate to be used repeatedly with the sanitizing solution without significantly reducing the concentration of sanitizer in the sanitizing solution.

As apparent from the above teachings of Svendsen, Svendsen does not teach an anti-microbial cationic quaternary ammonium additive for the substrate, and instead wants to repel cationic QAC-based antimicrobial agent away from the substrate and prevent it from bonding thereto. Further, Svendsen teaches that Table 1 at column 6, lines 39-67 summarizes test results obtained with a substrate treated with the enhanced sanitizer release polymer composition in accordance with the teachings of the invention of Svendsen. From these test results, as explained

by Svendsen, it can be readily seen that the substrate and polymer composition maintained the QAT concentration in the sanitizing solution at the original level throughout the four-hour test period, matching the control solution which was not used with the substrate during the test period. These results of Svendsen are understood to mean that no "QAT" was removed from the sanitizing solution by becoming bonded to or otherwise forming part of the substrate.

Accordingly, the use in Svendsen of "a cationic surfactant that repels the cationic QAC-based and cationic chlorine-based sanitizers and prevents the sanitizer from bonding to the substrate" teaches away from the wipes of the present claims on appeal where the cationic dual quaternary ammonia anti-microbial agent forms part of the wipe structure itself.

A prior art reference must be considered in its entirety, as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1550 (Fed. Cir. 1983). "A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 27 F.3d 551, 553 (Fed.Cir. 1994). As indicated, Svendsen discourages a person of ordinary skill away from incorporating the QAC or QAT-based antimicrobial agent in the wipe substrate itself and leads a person having ordinary skill in a direction divergent from the path taken by the applicant. When the prior art teaches away from combining certain elements, discovery of a successful means of combining them is more likely to be nonobvious. *KSR Int'l v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007)*Id.* at 1739-1740.

The QAC or QAT-based antimicrobial agent used in Svendsen is not contained in the indicated enhanced sanitizer release polymer composition or any other coating component associated with the substrate *per se*. It is pointed out that Svendsen illustrates a variety of different

surfactants for use in the polymer composition at columns 4-5 thereof, but none of these surfactants are defined as, nor would any appear to be, a cationic dual quaternary ammonia anti-microbial agent.

c). "wipe ... coated with a non-ionic and cationic binder mixture and subsequently coated with [the anti-microbial agent that] is readily released upon introduction to a water source."

For nonwoven fabrics, Svendsen also indicates that the composition may include cationic binders or a combination of cationic and nonionic binders (col. 4, lines 34-36). However, no binders are described in the Svendsen reference that are described as, or would appear to be, a cationic dual quaternary ammonia anti-microbial agent. According to the indicated principles of operation of the article of Svendsen, the antimicrobial is introduced from a sanitizing solution and the separate substrate is treated with the enhanced sanitizer release polymer composition containing surfactant which preferably repels sanitizer in the sanitizing solution so that the antimicrobial agent cannot bond to the substrate.

The nonwoven anti-microbial wipe of the present invention is designed for rapid release of an anti-microbial agent from the wipe into water when the wipe is introduced into a water source in a cleaning application, which can intensify a sanitizing operation, and not for maintenance of sanitizer levels for prolonged periods of use as introduced to the cleaning application from a sanitizing solution instead of the wipe. Further, as indicated, by combining a nonionic binder and a cationic binder for use with the cationic disinfectant in the same wipe, as in the claimed wipe, it has been found in the present invention that the non-ionic binder component of the binder mixture is sufficiently compatible with a cationic disinfectant wherein the disinfectant can be absorbed into a nonwoven wipe, and this compatibility also is marked by a low affinity between the binder and disinfectant with weak bonds formed that are easily broken such that the wipe can readily release

the disinfectant into a water source. Svendsen also does not teach or suggest these aspects and related advantages of the nonwoven anti-microbial wipes of the present invention.

Rivera et al. does not compensate for these deficiencies of Svendsen.

Rivera et al. is directed to three-dimensionally imaged nonwoven fabrics. Rivera et al. teaches that the three-dimensionally imaged nonwoven fabric optionally can be treated with a performance or aesthetic modifying composition to further alter the fabric structure or to meet end-use article requirements (col. 4, lines 1-5; col. 6, lines 17-22). For instance, Rivera et al. teaches that a polymeric binder composition can be selected to enhance durability characteristics of the fabric, while maintaining the desired softness and drapeability of the three-dimensionally imaged fabric (col. 4, lines 5-8; col. 6, lines 23-26). However, there is no teaching from the Rivera et al. or apparent reason to conclude that "a polymeric binder composition" of the reference suggests or necessarily is a non-ionic and cationic binder mixture. Rivera et al. also teaches a surfactant can be applied so as to impart hydrophilic properties or additionally an electrostatic modifying compound can be used to aid in cleaning or dusting applications (col. 4, lines 8-11; col. 6, lines 26-28). Rivera et al. does not teach or suggest that these additional optional additives are cationic anti-microbial agents. Rivera et al. fails to show any cationic binder component incorporated into a nonwoven fabric for any reason, and also fails to show any quaternary ammonia anti-microbial agent incorporated into a nonwoven fabric for any reason, and further fails to predict the outcome of combining such a missing cationic binder in combination with a non-ionic binder as a binder mixture coated on the nonwoven in combination with an overcoat of cationic dual quaternary ammonia anti-microbial agent. As indicated, this combination of different types of binders in a coating combined with a nonwoven fabric can impart advantageous disinfectant retention and release characteristics in the nonwoven wipe products of the present claims on appeal.

To render the present independent claims 4, 19, or 21 unpatentable, the Examiner's asserted combination of the patents to Svendsen and Rivera et al. must teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 985, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art); "obviousness requires a suggestion of all limitations in a claim." *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003) (citing *In re Royka*, 490 F.2d at 985)).

In view of the above-indicated reasons, the combination of Svendsen and Rivera et al. cannot meet this "all elements" requirement for showing obviousness with respect to at least the nonionic/cationic binder mixture coating with the coating of cationic dual quaternary ammonia anti-microbial agent that is readily released upon introduction to a water source recited in claims 4, 19, and 21 on appeal. As also indicated, Svendsen would have discouraged or lead a person of ordinary skill away from considering and attempting to design and construct a nonwoven anti-microbial wipe combining a cationic/anionic binder mixture coating with a coating of cationic dual quaternary ammonia anti-microbial agent in the same wipe structure such that the anti-microbial agent is readily releasable when the wipe is introduced in a water source as recited in the present claims on appeal.

In view of these reasons, Svendsen and Rivera et al. do not establish the *prima facie* obviousness of any of independent claims 4, 19, and 21, and any dependent claims therefrom. Therefore, the final rejection of claims 4 and 15-22 should be reversed.

Claim 22

Claim 22 on appeal further specifies that the additional layer included in the nonwoven laminate anti-microbial wipe in claim 21 is a film layer selected from the group consisting of a cast film, an extruded film, and a reticulated film.

The Examiner's Position

According to the Office Action dated July 8, 2010 (pages 3-4), claims 19-22 are unpatentable over the Svendsen in view of Rivera et al. for the following reasons. The Examiner states that Svendsen does not teach that the wipe is a hard surface wipe, its compositional makeup or the additional layers as sought in claims 19-22, and that this also is remedied by Rivera et al. The Examiner further asserts that a person having ordinary skill in the art at the time of the invention was made would have found it obvious to have used the composite of Rivera et al. as the base substrate for the wipes created by Svendsen, and that one would have been motivated to do this in order to provide a wipe with enhanced strength and durability in the overall composite.

The Appellants' Position

Present claim 22 on appeal does not merely recite a "film layer". Rivera et al. does not teach or suggest combining the nonwoven fabric having compound three-dimensional images with a film layer selected from the group consisting of a cast film, an extruded film, and a reticulated film. Rivera et al. show an "optional support layer or scrim" at column 5, lines 15-33, but no "film layer" as recited in claim 22 on appeal is taught or suggested. Rivera et al. only refers to "wovens, knits, open mesh scrims, and/or nonwoven fabrics" in this respect (see column 5, lines 23-25). A cloth, nonwoven, or mesh scrim is not a film layer as that term is understood by a person having ordinary skill in the art, nor a cast film, an extruded film, or a reticulated film in particular.

To render claim 22 unpatentable, the asserted combination of the patents to Svendsen and Rivera et al. must teach or suggest *each and every claim feature*, which requires a showing of a film layer selected from the group consisting of a cast film, an extruded film, and a reticulated film. *In re Royka*, 490 F.2d at 985. The Examiner has not identified factual evidence to support an assertion that Svendsen or Rivera et al. teach or suggest the indicated recitation of claim 22 on appeal. Therefore, the Examiner has not established evidence to support a conclusion that claim 22 on appeal is obvious over any teachings of Svendsen and Rivera et al.

Claim 22 is further patentably distinguishable from Svendsen and Rivera et al. for the reasons indicated above relative to its parent claim, claim 21, and reference is made thereto.

For at least these reasons, the Examiner's rejection of claim 22 should be reversed.

Conclusion

For the reasons set forth above, the appellants submit that the claims presently pending and on appeal in the above-captioned application meet all of the requirements of patentability. It is therefore respectfully requested that the Honorable Board reverse the Examiner and remand this application for issue.

Respectfully submitted,

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(10) Claims Appendix

4. A nonwoven anti-microbial wipe comprising a fibrous nonwoven substrate coated with a non-ionic and cationic binder mixture and subsequently coated with a cationic dual quaternary ammonia anti-microbial agent, said cationic dual quaternary ammonia anti-microbial agent being readily released upon being introduced to an associated water source.

15. A nonwoven anti-microbial wipe as in claim 4, wherein said anti-microbial wipe is a hard surface wipe.

16. A nonwoven anti-microbial wipe as in claim 4, wherein said fibrous nonwoven substrate comprises natural fibers.

17. A nonwoven anti-microbial wipe as in claim 4, wherein said fibrous nonwoven substrate comprises natural fibers selected from the group consisting of cotton, wood pulp and viscose rayon.

18. A nonwoven anti-microbial wipe as in claim 4, wherein said fibrous nonwoven substrate comprises carded and cross-lapped staple length fibers.

19. A nonwoven anti-microbial wipe comprising:

a three-dimensionally imaged fibrous nonwoven substrate coated with a non-ionic and cationic binder mixture and subsequently coated with a cationic dual quaternary ammonia anti-microbial agent, said cationic dual quaternary ammonia anti-microbial agent being readily released upon being introduced to an associated water source, and

a scrim layer reducing the extensibility of said three-dimensionally imaged fibrous nonwoven substrate.

20. A nonwoven anti-microbial wipe as in claim 19, wherein said scrim layer is selected from a unidirectional filament scrim, a bi-directional filament scrim, an expanded film, and a thermoplastic spunbond.

21. A nonwoven laminate anti-microbial wipe comprising:

a fibrous nonwoven substrate coated with a non-ionic and cationic binder mixture and subsequently coated with a cationic dual quaternary ammonia anti-microbial agent, said cationic dual quaternary ammonia anti-microbial agent being readily released upon being introduced to an associated water source, and

an additional layer selected from the group consisting of a fabric layer and a film layer.

22. A nonwoven laminate anti-microbial wipe as in claim 21, wherein said additional layer is a film layer selected from the group consisting of a cast film, an extruded film, and a reticulated film.

(11) Evidence Appendix

None.

(12) Related Proceedings Appendix

None.